

ABSTRACT OF THE DISCLOSURE

An average of pattern scores of a target binary image is obtained based upon the target binary image and first principal component vectors of a reference pattern, and the average of pattern scores of the target binary image is compared with a reference-pattern score that is based upon a sum total of distances between the first principal component direction of the reference pattern and a standard vector. Feature vector space of the target binary image is translated in accordance with the result of the comparison and access control information to be embedded in the target binary image, and an image is formed upon altering the target binary image based upon the result obtained by translating the feature vector space.